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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,909	02/25/2000	Keith Russell Edwards	476-1568.1	7736
7590	05/26/2004		EXAMINER	NGUYEN, HUY D
William M Lee Jr Lee Mann Smith McWilliams Sweeney & Ohlson PO Box 2786 Chicago, IL 60690-2786			ART UNIT	PAPER NUMBER
			2681	21
DATE MAILED: 05/26/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/512,909	EDWARDS ET AL.	
	Examiner	Art Unit	
	Huy D Nguyen	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 26 April 2004.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 23-26, 28-37, 39, 40 and 42-56 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 23-26, 28-37, 39-40, 42-56 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 23 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "broadband" in claims 23 and 39 is a relative term which renders the claim indefinite. The term " broadband " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The examiner will interpret "broadband signal" as signal that comprises more than one frequency.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 23-26, 29-30, 37, 39-40, 43-44, 51-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Lindemeier et al. (U.S. Patent No. 5,335,010).

Regarding claims 23-26, 29-30, 37, 39-40, 43-44, 51-56, Lindemeier et al. teach a receiver arrangement for a wireless terminal, for receiving a broadband signal the arrangement

comprising: a plurality of antennas forming a diversity antenna arrangement [col. 3, lines 11-12]; a plurality of receive paths, each receive path associated with one of antennas [e.g., antenna inputs 11 in figs. 1, 5-8]; a delay element in at least one of receive paths [e.g., phase shifters 24; col. 7, line 7]; a plurality of switches, each switch associated with one of receive paths [e.g., functionality equivalent to the switch in the selector 20; fig. 7]; a combiner, arranged to combine the output of plurality of switches into a combined signal [e.g., antenna combiner 21; figs. 6-8]; a signal assessor, arranged to assess combined signal according to a predetermined metric [e.g., signal quality evaluation circuit 7; fig. 1]; and a controller [e.g., control circuit 8; fig. 1], arranged to selectively switch at least one antenna into its receive path and to determine dependent on assessment whether to change antenna selection or to maintain antenna selection for a predetermined period [col. 3, lines 29-42].

Regarding claim 37, Lindemeier et al. discloses a receiver arrangement as claimed in claim 23, wherein the predetermined metric comprises a multi-path metric which can be set so that only one of plurality of antenna is employed (e.g., the switch of selector 20 can select either one antenna path or the combination of antenna paths; fig. 7).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 28, 34, 42, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindemeier et al. in view of Bruckert et al. (U.S. Patent No. 6,018,651).

Regarding claims 28, 42, Lindemeier et al. do not teach that the system uses CDMA technique. Bruckert et al. teach a radio subscriber unit using CDMA (col. 6, line 40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the CDMA technique as disclosed in Bruckert et al. to permit much higher spectral efficiency.

Regarding claims 34, 48, the combination also discloses a rake receiver arranged to combine signals (Bruckert et al.; col. 9, line 12).

7. Claims 31-32, 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindemeier et al. in view of Lee (U.S. Patent No. 5,818,543).

Regarding claims 31, 45, Lindemeier et al. discloses the claimed invention except that polarization diversity is employed to differentiate signals. However, the preceding limitation is well known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to employ polarization diversity as disclosed in Lee (col. 1, lines 56-58) to differentiate signals since that improves the receive signal quality.

Claims 32, 46 is the combination of claim 30 and 31. Therefore, they are rejected with the same reasons as set forth in claims 30 and 31.

8. Claims 33, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindemeier et al. in view of Okada et al. (U.S. Patent No. 5,526,398).

Regarding claims 33, 47, Lindemeier et al. discloses the claimed invention except that hysteresis is employed to control the switching. However, the preceding limitation is well known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the

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invention, to employ hysteresis as disclosed in Okada et al. (col.6, line11-14) in order to prevent rapid switching.

9. Claims 35, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindemeier et al. in view of Dean et al. (U.S. Patent No. 5,533,011).

Regarding claims 35, 49, Lindemeier et al. discloses the claimed invention except that each delay element is operable to delay the signals with respect to each other by a period T, corresponding to the chip rate of a spread spectrum transmission scheme in accordance with which signals are provided. Dean et al. teach that the high speed pseudonoise (PN) modulation allows many different propagation paths to be separated, provided the difference in path delays exceed the PN chip duration, i.e. 1/bandwidth [col. 2, lines 40-42; col. 9, lines 25-35]. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have each delay element operable to delay the signals with respect to each other by a period T, corresponding to the chip rate of a spread spectrum transmission scheme in accordance with which signals are provided in order to separate different propagation paths.

10. Claims 36, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindemeier et al. in view of Dean et al. (U.S. Patent No. 5,533,011) and in further view of Nagashima (U.S. Patent No. 5,740,204).

Regarding claims 36, 50, the combination of Lindemeier et al. and Dean et al. teaches the claimed invention except that MLSE technique is employed. However, the preceding limitation is well known in the art. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to use MLSE as disclosed in Nagashima (col. 1, lines 29-31) to improve the bit error rate.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huy D Nguyen whose telephone number is 703-305-3283. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Erika A Gary can be reached on 703-308-0123. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(H)


ERIKA A. GARY
PATENT EXAMINER